

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 January 2004 (22.01.2004)

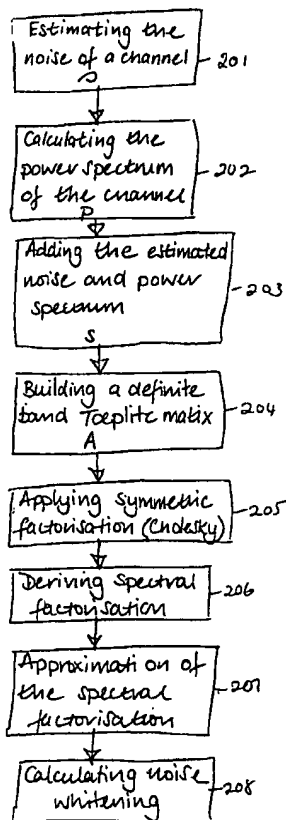
PCT

(10) International Publication Number
WO 2004/008705 A1

- (51) International Patent Classification⁷: H04L 25/03 (74) Agent: CLARKE, Alison, Clare; Haseltine Lake, Imperial House, 15-19 Kingsway, London WC2B 6UD (GB).
- (21) International Application Number: PCT/EP2003/005880
- (22) International Filing Date: 4 June 2003 (04.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
02255034.7 17 July 2002 (17.07.2002) EP
60/398,500 25 July 2002 (25.07.2002) US
- (71) Applicant (for all designated States except US): TELEFONAKTIEBOLAGET LM ERICSSON (PUBL) [SE/SE]; S-126 25 Stockholm (SE).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): HE, Shousheng [SE/SE]; Svärmarevägen 3, S-247 35 Södra Sandby (SE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: NOISE WHITENING



(57) Abstract: A method of noise whitening a received signal comprises estimating (201) the noise of a channel; calculating (202) the power spectrum of the channel; adding (203) the estimated noise and the calculated power spectrum to build (204) a positive definite band matrix; applying (205) symmetric factorisation to the matrix; deriving (206) the spectral factorisation of the channel from the symmetric factorisation; approximating (207) the spectral factorisation; calculating (208) the noise whitening prefilter settings from the derived spectral factorisation and the estimated noise of the channel; and prefiltering the received signal to noise whiten the signal.

WO 2004/008705 A1

BEST AVAILABLE COPY